Addendum
to
Advantage!™
User's Manual

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ADDENDUM TO THE

ADVANTAGE!™ USER'S MANUAL

This addendum adds necessary changes in the memory chip specification resulting from the use of 8 MHz PC-ATs.

Please replace the original pages with updated pages from this addendum as follows:

Original Pages	Updated Pages
4-9 through 4-10	4-9 through 4-10
4-11 through 4-12	4-11 through 4-12

4.3.2 Installing a Card "Above" the *Advantage!*

To address another card "above" the Advantage, follow this procedure:

STEP 1

Set the *Advantage!* starting address to one of the first three entries in the tables in Appendix D. Use the first entry if your AT has 256K on the system board. Use the second entry if your AT has 512K on the system board and you want to use Split Memory Addressing. Use the third entry if you do not want Split Memory Addressing or if you have the IBM 128K board.

STEP 2

Referring to the instructions supplied with the other card, set the other card's starting address to:

> 1 Megabyte plus the amount of *expansion* memory on the *Advantage!*

For example, if the *Advantage!* has 1.5 Megabytes of expansion memory on it, you would set the other card's starting address at 2.5 Megabytes, which is hexadecimal address :280000.

If you are using Split Memory Addressing on the *Advantage!*, remember that the amount of expansion memory is the total *Advantage!* memory minus the amount it contributes to the 640K user memory area. Using the above example, a 1.5 Megabyte *Advantage!* with Split Memory Addressing enabled in a 512K AT would have 1.375 Megabytes of expansion memory (1.5 MB minus 128K), so you would set the other card's starting address at 2.375 Megabytes (1 MB + 1.375 MB), which is hexadecimal address :260000.

STEP 3

Run the AT's SETUP program and configure it for the new amounts of (1) base memory and (2) expansion memory. You can use the tables in Appendix D to convert Megabytes to Kilobytes (SETUP requires information in Kilobytes).

4.4 Installing Additional Memory on the *Advantage!*

On the *Advantage!* and Advantage-Pak, a memory row which is populated with 18 64K memory chips contains 128K bytes of memory, while a row populated with 18 256K memory chips contains 512K bytes of memory:

(18) 64K Chips = 128K Bytes (64K 16-Bit Words)
(18) 256K Chips = 512K Bytes (256K 16-Bit Words)

An *Advantage!* or Advantage-Pak which is not fully populated can be upgraded with additional memory simply by plugging in additional memory chips. You can also upgrade from 64K chips to 256K chips. AST offers 128K memory upgrade kits for the *Advantage!* and Advantage-Pak, consisting of 18 64K chips; order AST part number MPAD-128. AST also offers 512K memory upgrade kits consisting of 18 256K chips; order AST part number MPAD-512.

4.4.1 Memory Chip Specifications

If you purchase memory chips from another source, be sure they meet the following specifications for use in either 8-MHz or 6-MHz PC-ATs.

64K Chip Specifications. User 64K Dynamic Random Access Memory (DRAM) with these characteristics:

120 nanosecond (ns) access time
Pin 1 not used
+5 Volt Only

The following 64K memory chips are compatible:

Fujitsu MB81464-12PZ
Micron MT4067Z-12

256K Chip Specifications. Use 256K Dynamic Random Access Memory (DRAM) with 120 nanosecond (ns) access time. The following manufacturer's 256K (120 ns) memory chips are compatible:

Fujitsu MB81256-12P
Hitachi HM50256P-12
Micron MT1257-12
Motorola MCM6256P-12
NEC UPD41256C-12
Samsung KM41256-12
Texas Instruments TMS4256-12NL
Toshiba TMM41256P-12

4.4.2 Populating the Memory Rows with Memory Chips

Figure 4-3 illustrates the arrangement of the rows of memory chips on the *Advantage!*.

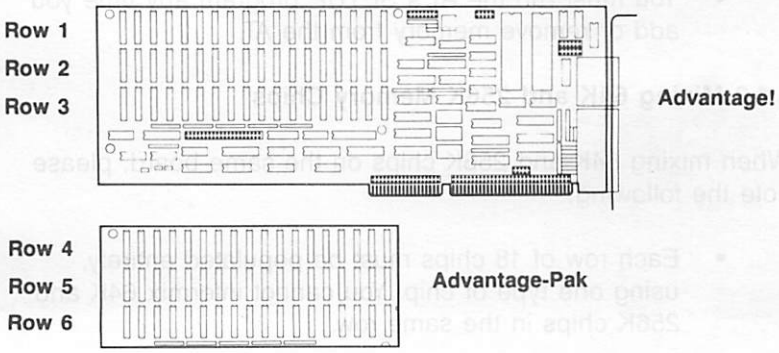

Figure 4-3. Memory Row Configuration.

The *Advantage!* main board can have up to three rows of memory on it, numbered 1, 2, and 3. The optional Advantage-Pak piggyback memory card provides additional rows of memory, numbered 4, 5, and 6. This provides up to 3 Megabytes in the space of a single AT expansion slot.

When adding memory to the *Advantage!* or Advantage-Pak, please note the following:

- The memory rows on the *Advantage!* and Advantage-Pak must be populated in sequential order. You cannot have an empty row of sockets in between two populated rows.

- Do not install the Advantage-Pak piggyback board unless all three rows on the *Advantage!* main board are fully populated.

- Whenever you add or remove memory on the *Advantage!*, be sure you re-adjust Switch Block #1 to reflect the new memory configuration on the card. This topic is discussed in Subsection 4.5.

- You must run the AT's SETUP program any time you add or remove memory from the AT.

4.4.3 Mixing 64K and 256K Memory Chips

When mixing 64K and 256K chips on the same board, please note the following:

- Each row of 18 chips must be populated entirely, using one type of chip. You cannot intermix 64K and 256K chips in the same row.

- Once a row of 256K chips is installed, all the following rows must use only 256K chips. For example, if you have 64K chips in Rows 1 and 2, and you install 256K chips in Row 3, then Rows 4 through 6 (on the Advantage-Pak) must all use 256K chips.